



## Product Sheet XRD 39

### MTC-HIGHTEMP+ - Highest Sample Temperatures

The MTC-HIGHTEMP+ is designed for highest temperature X-ray diffraction in reflection mode on a vertical goniometer.

The MTC-HIGHTEMP+ combines direct and radiation heaters for achieving high temperatures up to 2000°C. Both heaters are made of Ta. Consequently, high vacuum is required for operation above 300°C. The direct contact between the sample and the direct heater enables fast temperature ramping, whereas the radiation heater helps minimizing temperature gradients along the sample. The thermal elongation of the direct heater is automatically compensated by a spring loaded turnable electrode. This ensures a constant sample position over the full temperature range.

- Combined direct and radiation heating
- RT to 2000°C
- Fast temperature ramping
- For operation in vacuum
- Modular chamber design



MTC-HIGHTEMP+ chamber with motorized height alignment stage



MTC-HIGHTEMP+ interior with U-shaped radiation heater moved out of the way

The actual temperature is measured with a thermocouple, welded at the back of the direct heater. The sample is prepared as a thin layer on top of the heating strip. To facilitate sample loading the U-shaped radiation heater can be moved out of the way.

The MTC-HIGHTEMP+ is an integral part of the DAVINCI design. The stage mounts to the D8 goniometer through a bayonet interface, which allows fast and reproducible exchange with other sample stages.

As a member of our MTC family of modular non-ambient chambers, the MTC-HIGHTEMP+ can be easily reconfigured to other MTC-type chambers by simply exchanging the heater and sample holder unit.

As you may expect of an integrated solution, setting up a measurement to the final data evaluation is fully supported by our DIFFRAC.SUITE software.

MTC-HIGHTEMP+ - Technical Data	
<b>Temperature Range</b>	RT to 2000°C
<b>Atmosphere</b>	High vacuum*
<b>Heater Material</b>	Ta for both direct and radiation heater
<b>Sample Holder Material</b>	Ta
<b>Thermocouple</b>	Type D, in touch with the back of the direct heater
<b>X-Ray Window Opening</b>	12 mm wide, -10° to 190° 2Theta
<b>X-Ray Window Material</b>	Kapton, additional graphite foil for operation above 1200°C
Required Accessories	
	Temperature controllers: TCPU1 and PU1
	Height alignment adapter (manual or motorized)
	Vacuum pump unit

\*) better than  $10^{-4}$  mbar (turbo molecular pump required)